

## **REMARKS:**

Please cancel Claims 17-20 without prejudice. New Claims 21 and 22 are hereby added. Upon entry of this Amendment, Claims 1-16, 21, and 22 will be pending in the present application.

Claim 20 stands rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 2, 5-10, 12-14, and 16-20 stand rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 3,135,486 to G.S. Wing ("*Wing*"). Claim 11 stands rejected under 35 U.S.C. § 103(a) over *Wing*. Claim 15 stands rejected under 35 U.S.C. § 103(a) over *Wing* in view of U.S. Patent No. 1,866,680 to W.B. Stout ("*Stout*"). Claims 3 and 4 stand rejected under 35 U.S.C. § 103(a) over *Wing* in view of U.S. Patent No. 4,976,396 to Carlson et al. ("*Carlson*").

Claim 1 has been amended in order to more particularly point out and distinctly claim the invention. Claims 2-16 have been amended in order to provide for consistency with amended Claim 1.

Support for amendments made to the claims can be found in the Specification in at least the following places:

The limitation, "forming a surface thickness therebetween," added to Claim 1, has support at least in Figures 3, 4, and 6 which show the leading edge member having a thickness between an exterior surface and an interior surface.

The limitation, "wherein the leading edge member is configured for attachment to a substructure," added to Claim 1, has support at least in Figure 1 which shows a leading edge member (133a, 133b, 135, 131a, and 131b) attached to the substructure (117a, 117b, 113, 116a, and 116b) of an aircraft (111). Figures 2-6 show a leading edge member not attached to the substructure of an aircraft, but Figures 2 and 3 identify where the typical substructure would be located when attached to an aircraft. In particular, Figures 2 and 3, show the location of substructure is a spar plane (177) of a horizontal stabilizer (116a, 116b). A spar is a typical structural member of a wing, horizontal

stabilizer, or vertical fin. The structure of horizontal stabilizers (116a, 116b) includes the remaining physical portion of the airfoil shape (other than the leading edge 133a, 133b), such as the upper and lower skin members, internal structure, as well as the trailing edge, all of which are characterized in the horizontal stabilizers (116a, 116b) of Figure 1.

The limitation, "wherein the leading edge member is configured for forming a forward portion of an airfoil," added to Claim 1, has support at least on page 2, lines 9-11. The paragraph on page 4, starting on line 17, gives support for claiming a leading edge member. Figure 1 provides support for a leading edge member being only a forward part of an airfoil on an aircraft. The paragraph on page 4, starting on line 30 describes the leading edge member having an airfoil shape. Figure 1 shows an aircraft having a substructure of a vertical fin, a substructure of a horizontal stabilizer, and a substructure of a wing member. Figures 2-6 show only a leading edge member, without the substructure of a vertical fin, a substructure of a horizontal stabilizer, or a substructure of a wing member. As such, it is evident that the specification has support for the limitation of the leading edge member being non-inclusive of substructure of a vertical fin, a substructure of a horizontal stabilizer, or a substructure of a wing member.

The limitation, "wherein the substructure is at least one a substructure of a vertical fin, a substructure of a horizontal stabilizer, and substructure of a wing member," added to Claim 1, has support at least on page 6, line 6; page 7, line 8; and Figure 1.

The limitation, "wherein the leading edge member is configured to protect the substructure by absorbing an impact energy from a collision with the object," added to Claim 1, has support at least on page 5, lines 15-18.

Newly added Claim 21, which has the limitation "wherein the leading edge member is attached to the substructure using at least one fastener," has support at least in the paragraph on page 6, starting on line 5; as well as the paragraph on page 7, starting on line 7. A "rivet" is a fastener, and "other suitable means" contemplates that other fasteners besides a rivet may be used to facilitate attachment of the leading edge member to substructure of the aircraft.

Newly added Claim 22, which has the limitation, "wherein the leading edge member is configured for detachment from the substructure by removing the at least one fastener", has support at least on page 6, lines 6-8, which speaks to the use of rivets or other suitable means to attach the leading edge member to substructure. Figures 2-6 also represent the leading edge member being a separate from the substructure, while Figure 1 shows the leading edge member being attached to the substructure, with fasteners. As such, the leading edge member may be detached from the substructure by removing the fasteners. While it is contemplated that fasteners other than rivets may be used, even rivets are able to be removed without cutting or otherwise permanently deforming the leading edge member.

The support for amendments made to the dependent claims is deemed to be evident in light of the above comments made in regard to support for Claim 1.

The Applicants submit that the foregoing amendments add no new matter to the application.

#### **FINALITY OF OFFICE ACTION:**

On 6 November 2008, an Advisory Action was mailed to the Applicants stating that new issues required further consideration have been raised. The Applicants thereafter filed a Request for Continued Examination on 13 November 2008. According to MPEP § 706.07(b)(A), it was improper for the Office Action dated 30 January 2009 to be marked as Final. As such, the Applicants hereby request that the finality of the Office Action dated 30 January 2009 to be withdrawn.

#### **INTERVIEW SUMMARY:**

Applicants acknowledge with appreciation Examiner Michael Kreiner and Supervisory Patent Examiner Michael Mansen granting an Examiner Interview on 20 February 2009 with Applicants' representative Brian Harris and technical assistant Noah Tevis.

In the Examiner Interview, it was first discussed as to whether it was proper for the Office Action dated 30 January 2009 to be a Final Office Action. The Examiners

acknowledged that it was not proper for the Office Action dated 30 January 2009 to be final, and recommended the Applicants' representative to ask for the finality of the Office Action to be withdrawn in the Amendment herein. The Examiners agreed that by so doing, the finality of the aforementioned Office Action would be withdrawn.

The Applicants' representative Brian Harris and technical assistant Noah Tevis further questioned the Examiners about independent Claim 1 in relation to U.S. Patent 2,135,486 to Wing (*Wing*).

The Examiners advised that they consider language "protective skin" in the preamble of Claim 1 to be confusing, leaving them uncertain as to whether the claimed protective skin was attached to the exterior of an existing wing skin or was the leading edge member itself. The Applicants have herein amended Claim 1 so as to clarify that the claims are directed toward a leading edge member attached to a substructure.

**DRAWING OBJECTION:**

The Office Action includes an objection to the claims under 37 C.F.R. § 1.83(a) for allegedly failing to show "coupling the leading edge member to a forward section of the airfoil surface," which was recited by claim 20. However, as noted above, claim 20 has been cancelled. Thus, this objection to the drawings is considered moot.

**REJECTION UNDER 35 U.S.C. § 112:**

Claim 20 stands rejected under 35 U.S.C § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

By this Amendment, Claim 20 has been cancelled. Thus, the rejection of Claim 20 is considered moot.

**REJECTIONS UNDER 35 U.S.C. § 102(b):**

Claims 1, 2, 5-10, 12-14, and 16-20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by G.S. Wing (*Wing*). However, since *Wing* fails to disclose all of the

limitations of claims 1, 2, 5-10, 12-14, and 16-20 as discussed below, this rejection is respectfully traversed.

Claims 17-20 have been cancelled. Thus, the rejection of claims 17-20 is considered moot.

Claim 1 is an independent claim, and Claims 2, 5-10, 12-14, and 16 depend, directly or indirectly, from Claim 1. Accordingly, the following remarks made in connection with Claim 1 apply equally to Claims 2, 5-10, 12-14, and 16.

*Wing* discloses a wing skin in which the leading edge portion is integral to the primary wing skin. In the case of *Wing*, the leading edge portion of the skin is simply the portion of the wing skin that is first to engage the airstream during forward flight. The airfoil skin attaches to leading edge formers as well as trailing edge formers, indicating that the skin covers more than just the leading edge portion (*Wing*, Col. 2, lines 1-4, Fig. 6 and Fig. 7). If a foreign object, such as a bird, were to strike the leading edge portion of the wing skin in *Wing*, the damage would likely require extensive repairs and/or replacement of the entire wing skin, or the entire wing itself. This is largely due to the fact that the wing skin covers the entire wing, and that the wing skin is a continuous single part without anyway of attenuating energy from an impact from an object during flight.

In contrast, Claim 1, as presently amended, includes solely the leading edge member, which is a separate and distinct physical member from the substructure behind the leading edge member. This allows the leading edge member to be configured to deform on impact, thereby minimizing damage to the substructure of the aircraft. An example of such substructure would be: remaining airfoil skin portions, a trailing edge, and internal structural components such as spars and ribs. In contrast, the leading edge portion of the skin in *Wing* is integral to the entire wing skin and is not configured to protect substructure from a collision with an object. *Wing* does not disclose any configuration that would protect the substructure from a collision with an object. Actually, *Wing* discloses a configuration that provides a direct load path from leading edge portion of the skin to the substructure, which is at least partially what the leading edge member of claim 1 seeks to avoid. In summary, the leading edge member of Claim 1 is a separate

and distinct member, whereas the leading edge portion of the wing skin in *Wing* is integrated into the entire wing skin. In addition, the leading edge member of Claim 1 is configured to deform on impact, thereby protecting the substructure by absorbing impact energy from a collision with an object. For at least these reasons, the Applicants submit that Claim 1, as amended, is not anticipated by *Wing*.

Accordingly, since *Wing* fails to disclose all of the limitations of Claim 1, *Wing* cannot anticipate Claim 1, or Claims 2, 5-10, 12-14, and 16, which depend from Claim 1. Therefore, it is respectfully requested that the rejection of Claims 1, 2, 5-10, 12-14, and 16 under 35 U.S.C. § 102(b) be reconsidered and withdrawn. The Applicants respectfully request that Claims 1, 2, 5-10, 12-14, and 16 be allowed.

**REJECTIONS UNDER 35 U.S.C. § 103(a):**

Claim 11 stands rejected under 35 U.S.C. § 103(a) over *Wing*. Claim 15 stands rejected under 35 U.S.C. § 103(a) over *Wing*, and further in view of *Stout*. Claims 3 and 4 stand rejected under 35 U.S.C. § 103(a) over *Wing* in view of *Carlson*. These rejections are respectfully traversed as discussed below.

**Claim 11**

Claim 11 stands rejected under 35 U.S.C. § 103(a) over *Wing*. The Office Action states that it would have been obvious to one skilled in the art at the time of the invention to create different pockets on opposing sides of the protective skin.

Claim 11 is indirectly dependent upon Claim 1. The Applicants reiterate here the distinguishing remarks set forth above with regard to Claim 1. At least because *Wing* fails to disclose the features of Claim 1, *Wing* cannot render obvious Claim 11, which is indirectly dependent upon Claim 1.

It is respectfully requested that the rejection of Claim 11 under 35 U.S.C. § 103(a) over *Wing* be reconsidered and withdrawn.

#### Claim 15

Claim 15 stands rejected under 35 U.S.C. § 103(a) over *Wing* as applied to claim 13 above, and further in view of *Stout*. The Office Action states that it would have been obvious to one skilled in the art at the time of the invention to leave the stiffening means unconnected to the substructure, in order to reduce the weight of the aircraft. The Office Action further states that *Stout* teaches wherein the stiffening means is not connected to a substructure of the aircraft.

*Stout* teaches a general wing structure having a continuous wing skin. The wing structure in *Stout* is similar to the wing structure in *Wing*, in that it discloses a configuration that provides a direct load path from leading edge portion of the skin to the substructure without being configured to absorb impact energy. In contrast, the claimed invention at least discloses a leading edge member configured to protect the substructure by absorbing impact energy from a collision. In addition, Office Action states the stiffening means (175) is not connected to a substructure; however, it does appear to be connected to substructure (188) in Figure 14. Thus, *Stout* fails to cure the deficiency of *Wing* such that the proposed combination of *Wing* and *Stout* fails to disclose or suggest all of the limitations of Claim 15. For at least this reason, the proposed combination of *Wing* and *Stout* cannot render claim 15 obvious.

In light of the remarks above, it is respectfully requested that the rejection of Claim 15 under 35 U.S.C. § 103(a) over *Wing* in view of *Stout* be reconsidered and withdrawn.

#### Claims 3 and 4

Claims 3 and 4 stand rejected under 35 U.S.C. § 103(a) over *Wing* in view of *Carlson*. However, since the proposed combination of *Wing* and *Carlson* fails to disclose or suggest all of the limitations of Claim 1, the proposed combination of *Wing* and *Carlson* cannot render Claims 3 and 4 obvious.

Claims 3 and 4 depend from Claim 1. Accordingly, the remarks above in connection with Claim 1 apply equally to Claims 3 and 4. That is, *Wing* cannot anticipate or render obvious Claims 3 and 4. *Carlson* fails to cure this deficiency of *Wing*. *Carlson*,

like *Wing*, at least fails to disclose a leading edge member configured to protect the substructure by absorbing impact energy from a collision, as disclosed in Claim 1, and therefore also fails to disclose the more specific limitations recited in Claims 3 and 4. Thus, *Wing* and *Carlson*, whether considered separately or in combination as proposed by the Office Action, fail to disclose or suggest all of the limitations of Claims 3 and 4. Since Claims 3 and 4 depend from Claim 1, *Wing* and *Carlson*, whether considered separately or in combination as proposed by the Office Action, likewise fail to disclose or suggest all of the limitations of Claims 3 and 4.

In light of the remarks above, it is respectfully requested that the rejection of Claims 3 and 4 under 35 U.S.C. § 103(a) over *Wing* in view of *Carlson* be reconsidered and withdrawn.

**NEW CLAIMS:**

New Claims 21 and 22 have been added in order to provide for a more adequate basis for protection of the invention. Claims 21 and 22 depend from independent claim 1. Accordingly, the arguments presented above in connection with Claim 1 apply equally to Claims 21 and 22. Since Claim 1 is considered to be in condition for allowance for at least reasons presented above, Claims 21 and 22 are likewise considered to be in condition for allowance.



**CONCLUSION:**

The Applicants submit that the foregoing amendments and remarks place the subject application in condition for allowance. As such, the Applicants respectfully request reconsideration and a Notice of Allowance.

This Amendment is being filed via the U.S. Patent and Trademark Office's EFS-Web electronic filing system. No fees are deemed to be necessary; however, the undersigned hereby authorizes the Commissioner to charge any additional fees which may be required, or credit any overpayments, to **Deposit Account No. 502806**.

Respectfully submitted,

22 April 2009  
Date

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